

**DATA EVALUATION RECORD  
VEGETATIVE VIGOR EC<sub>25</sub> TEST  
§123-1 (TIER II)**

1. **CHEMICAL**: Isoxaflutole

PC Code No.: 123000

2. **TEST MATERIAL**: RPA 201772 (parent compound)

Purity: 99.43%

3. **CITATION**:

Author: Teixeira, D.

Title: RPA 201772- Determination of Effects on Vegetative  
Vigor Screening of Three Plant Species

Study Completion Date: July 23, 1998

Laboratory: Springborn Laboratories, Inc.  
790 Main Street  
Wareham, Massachusetts

Sponsor: Rhone-Poulenc Ag Company  
2 T.W. Alexander Drive  
Research Triangle Park, North Carolina

Laboratory Report ID/Study ID: 98-6-7370/10566.0498.6490.610

MRID No.: 45535404

DP Barcode: D282361

4. **REVIEWED BY**: Rebecca Bryan, Staff Scientist, Dynamac Corporation

**Signature**:

**Date**: 8/28/02

**APPROVED BY**: Teri Myers, Ph.D., Staff Scientist, Dynamac Corporation

**Signature**:

**Date**: 8/28/02

5. **APPROVED BY**: Mike Davy, OPP/EFED/ERB II

**Signature**:

**Date**:

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Draft Copies*

**6. STUDY PARAMETERS:**

**Scientific Name of Test Organism:** Dicots: *Brassica oleracea*, *Lactuca sativa*, and *Brassica rapa*  
Monocots: None.

**Definitive Study Duration:** 21 days

**Type of Concentrations:** Nominal

**7. CONCLUSIONS:**

The vegetative vigor of three plant species was tested in a screening study after application of RPA 201772 (the parent compound of Isoxaflutole) applied at high water volume (956.1 gallons per acre) at three low-dose concentrations. Test species (all dicots) included cabbage, lettuce, and turnip. Cabbage was tested at rates of 0.000095, 0.00019, and 0.00038 lb a.i./A; lettuce was tested at rates of 0.00012, 0.00023, and 0.00046 lb a.i./A; turnip was tested at rates of 0.000075, 0.00015, and 0.00030 lb a.i./A.

Turnip was the most sensitive species based on whole plant weight. The EC<sub>25</sub> for turnip whole plant weight was 0.00013 lb a.i./A and the NOEC was <0.000075 lb a.i./A., because significant effects were detected at all treatment levels.

**This study is classified as Supplemental.** It is scientifically sound but, because it was conducted as a preliminary screening study, it does not fulfill the US EPA guideline requirements for a vegetative vigor study (Subdivision J, §123-1, TIER II). Significant reductions (>25%) were shown for whole plant weight of all three species, which justifies conducting a definitive Tier II study with RPA 201772 that satisfies the US EPA guideline requirements for a vegetative vigor test.

Most sensitive monocot: N/A

Most sensitive dicot: Turnip

**Most sensitive parameter: Whole plant weight**

EC<sub>25</sub>: 0.00013 lb a.i./A    95%CI: 0.000067-0.00024 lb a.i./A

NOEC: <0.000075 lb a.i./A    Probit slope: 1.37 ± 0.425

**8. ADEQUACY OF THE STUDY:**

**A. Classification:** Supplemental

**B Rationale:** This study is scientifically sound but, because it was conducted as a preliminary screening test, it does not fulfill the guideline requirements for a vegetative

vigor study (Subdivision J, §123-1, TIER II).

**C. Repairability:** The results from this screening study justify conducting a definitive Tier II study with RPA 201772 that satisfies the US EPA guideline requirements for a vegetative vigor test. Another screening test (at low water volume) was submitted for RPA 201772 which also showed significant reductions (>25%) for these three species (MRID 45535402). The study author reported that this test was conducted at the request of the study sponsor subsequent to the submission of a study exposing 10 plant species to the parent compound RPA 201772 (SLI report # 94-4-5234); however, SLI report # 94-4-5234 (MRID 45535403) contains only data with no description of the experimental procedure.

#### **9. GUIDELINE DEVIATIONS:**

The study author did not calculate EC<sub>25</sub> or NOEC values. Reductions for plant weight of all species (cabbage, lettuce, and turnip weight) exceeded 25% of the pooled control values.

Because this study was conducted as a screening study, there were numerous deviations from the US EPA guidelines for a vegetative vigor test (e.g., number of species tested, number of dose levels, replicate number, etc.).

**10. SUBMISSION PURPOSE:** This screening study was submitted to provide supplemental data on the toxicity of RPA 201772 applied at high water volume (956.1 gallons per acre) to the vegetative vigor of several plant species for the purpose of chemical registration. The study author reported that this test was conducted at the request of the study sponsor subsequent to the submission of a study exposing 10 plant species to the parent compound RPA 201772 (SLI report # 94-4-5234).

**11. MATERIALS AND METHODS:****A. Test Organisms**

Guideline Criteria	Reported Information
<b>Species:</b> 6 dicots in 4 families, including soybean and a rootcrop; 4 monocots in 2 families, including corn.	<u>Dicots</u> : cabbage, lettuce, and turnip <u>Monocots</u> : None
<b>Number of plants per repetition:</b>	5 seedlings per replicate; ten total seedlings per test concentration
<b>Source of seed and historical % germination of seed:</b>	Park Seed Company, Greenwood, South Carolina; 93-96% seed germination

**B. Test System**

Guideline Criteria	Reported Information
<b>Solvent:</b>	10% acetone:90% deionized water mixture
<b>Site of test:</b>	Tests were performed at Springborn Laboratories Inc., Wareham, Massachusetts in an environmental chamber.
<b>Planting method/type of pot:</b>	<p>The planting pots were polypropylene (top diameter = 13 cm, bottom diameter = 9 cm, height = 13 cm, depth of soil = 10 cm). This information was obtained from the protocol included in report (p. 31).</p> <p>The soil substrate was a sandy-loam (lot# 397C) purchased from Read Sand and Gravel Co., Rockland, Massachusetts. Silica sand (20- to 40-mesh; 0.11% organic matter, pH 7.3) from Wedron Silica Co. was added to the sandy loam 3:1 (sandy loam:sand) by weight. The organic matter of the soil was analyzed at Springborn Laboratories and the results indicated 2.0% organic matter. No pesticides, PCBs, or</p>

Guideline Criteria	Reported Information
	toxic metals were found in analysis of the sandy-loam or silica sand samples (Appendix III, pp. 42-45).
<b>Method of application:</b>	Foliage application using overhead atomizing spray nozzle (Spray Systems Company, Wheaton, Illinois) and revolving belt which moved plants past the spray nozzle.  The system was calibrated to deliver 9.3 mL of treatment solution per pot (high water volume).
<b>Method of watering:</b>	Subirrigation via a polypropylene saucer.
<b>Growth stage at application:</b>	Seedling (0.9-1.3 mean true leaves) (p. 65)

### C. Test Design

Guideline Criteria	Reported Information
<b>Dose range: 2x or 3x</b>	2x
<b>Doses: At least 5</b>	<u>cabbage</u> : 0.000095, 0.00019, and 0.00038 lb a.i./A. <u>lettuce</u> : 0.00012, 0.00023, and 0.00046 lb a.i./A. <u>turnip</u> : 0.000075, 0.00015, and 0.00030 lb a.i./A.
<b>Controls: Negative and solvent</b>	Negative and solvent control.
<b>Replicates per dose: At least 3</b>	2 replicates per dose
<b>Test duration: 14 days</b>	21 days (7 day preincubation and 14 days after application).
<b>Were observations made at least weekly?</b>	Weekly observations
<b>Maximum dosage rate:</b>	0.14 lb a.i./A

**12. REPORTED RESULTS:**

<b>Guideline Criteria</b>	<b>Reported Information</b>
<b>Quality assurance and GLP compliance statements were included in the report?</b>	Yes
<b>Was a NOEC observed for each species?</b>	No, a NOEC could not be determined for cabbage and turnip weight because significant reductions (>25%) were detected at all treatment levels, compared to the pooled control.
<b>Phytotoxic observations:</b>	Chlorosis, necrosis, and phototoxicity indices were calculated (formula and rating system on p. 12).  Plant length and dry weight were also measured at test termination. The shoot and root portions of the plants were dried in radiant heat ovens at 106 to 107°C for ≥3 days to obtain the whole plant dry weights.
<b>Were initial chemical concentrations measured? (Optional)</b>	Not reported
<b>Were adequate raw data included?</b>	Yes

Results for the most sensitive parameter of each species

**Results Synopsis**

<b>Crop</b>	<b>Shoot length</b>		<b>Whole plant weight</b>		<b>Most sensitive parameter</b>
	<b>NOEC</b>	<b>EC<sub>25</sub></b>	<b>NOEC</b>	<b>EC<sub>25</sub></b>	
Cabbage	Not reported	Not reported	Not reported	Not reported	Not reported
Lettuce	Not reported	Not reported	Not reported	Not reported	Not reported

Crop	Shoot length		Whole plant weight		Most sensitive parameter
	NOEC	EC <sub>25</sub>	NOEC	EC <sub>25</sub>	
Turnip	Not reported	Not reported	Not reported	Not reported	Not reported

### Morphological Observations

**Cabbage:** Percent inhibition of mean shoot length compared to the pooled control was 9.1, 6.8, and 2.3% for the 0.000095, 0.00019, and 0.00038 lb a.i./A treatment groups, respectively.

Mean whole plant weights decreased with increasing test concentrations, compared to the pooled control. Percent inhibition compared to the pooled control was 18, 32, and 47% for the 0.000095, 0.00019, and 0.00038 lb a.i./A treatment groups, respectively.

By 21 days, necrotic and phototoxic effects were observed in the 0.000095 and 0.00019 lb a.i./A treatment groups. Significant chlorotic effects were observed in the 0.000095, 0.00019, and 0.00038 lb a.i./A treatment groups.

There were no mortalities observed in the control or treatment groups.

**Lettuce:** The mean shoot length percent inhibition compared to the pooled control was -3.7, 0.0, and 22% for the 0.00012, 0.00023, and 0.00046 lb a.i./A treatment groups, respectively.

Mean whole plant weights decreased with increasing test concentrations, compared to the pooled control. The % inhibition compared to the pooled control was 17, 24, and 36% for the 0.00012, 0.00023, and 0.00046 lb a.i./A treatment groups, respectively.

By 21 days, necrotic, chlorotic, and phototoxic effects were observed in the 0.00023 and 0.00046 lb a.i./A treatment groups. Chlorosis was significant in the 0.00023 and 0.00046 lb a.i./A treatment groups.

The negative and solvent control each had one mortality. Also, one mortality was observed in the 0.00046 lb a.i./A treatment group. No other mortalities were observed.

**Turnip:** The mean shoot length % inhibition compared to the pooled control was -4.3, -6.5, and -13% for the 0.000075, 0.00015, and 0.00030 lb a.i./A treatment groups, respectively.

Mean whole plant weights decreased with increasing test concentrations, compared to the pooled control. The % inhibition compared to the pooled control was 15, 29, and 43% for the 0.000075, 0.00015, and 0.00030 lb a.i./A treatment groups, respectively.

By 21 days, necrotic and chlorotic effects were observed in the 0.000075 lb a.i./A treatment group, chlorotic effects in the 0.00015 lb a.i./A treatment group, and necrotic, chlorotic, and phototoxic effects in the 0.00030 lb a.i./A treatment group. In the 0.000075, 0.00015, and 0.00030 lb a.i./A treatment groups, the chlorotic effects were significant.

There were no mortalities in the controls or treatment groups.



Statistical Results

Statistical Method: No statistical analyses were reported by the study author and EC<sub>25</sub> and NOEC values were also not reported.

**13. REVIEWER'S VERIFICATION OF STATISTICAL RESULTS:**

Statistical Method: Length and weight data for all species that were analyzed were shown to be normally distributed and the variances were homogeneous. The NOEC and LOEC values were determined using ANOVA, followed by William's test. These analyses were conducted using TOXSTAT statistical software. The EC<sub>25</sub> values were determined using the probit method via Nuthatch statistical software.

**Results synopsis**

Crop	Shoot length		Whole plant weight		Most sensitive parameter
	NOEC*	EC <sub>25</sub> *	NOEC*	EC <sub>25</sub> *	
Cabbage	0.00038	>0.00038	<0.000095	0.00014	Whole plant weight
Lettuce	0.00023	>0.00046	0.00023	0.00023	Whole plant weight
Turnip	0.00030	>0.00030	<0.000075	0.00013	Whole plant weight

\* Units are lb a.i./A

Most sensitive monocot: N/A

Most sensitive dicot: Turnip

Most sensitive parameter: Whole plant weight

EC<sub>25</sub>: 0.00013 lb a.i./A 95%CI: 0.000067-0.00024 lb a.i./A

NOEC: <0.000075 lb a.i./A Probit slope: 1.37 ± 0.425

**14. REVIEWER'S COMMENTS:**

The reviewer determined that turnip was the most sensitive species, based on whole plant weight. The NOEC values were determined by the reviewer. The NOEC and EC<sub>25</sub> were not calculated by the study author.

The study author reported that this test was conducted at the request of the study sponsor subsequent to the submission of a study exposing 10 plant species to the parent compound RPA 201772 (SLI report # 94-4-5234; p. 8). The application rates selected for cabbage and lettuce ranged from 200% of the  $EC_{50}$ , at the  $EC_{50}$ , and 50% of the  $EC_{50}$  values for root weight and for turnip ranged from approximately the  $EC_{25}$ , 200% of the  $EC_{25}$  and 400% of the  $EC_{25}$  value for root weight determined during a previous vegetative vigor exposure with RPA 201772 conducted at Springborn (SLI Report #94-4-5234). The cited study, SLI Report #94-4-5234, was apparently submitted to EPA as MRID 45535403; however, this report contains only data, with no description of the experimental procedure.

The solution concentration applied during the high volume vegetative vigor tests was determined as a function of the surface area of the treated pots and the volume of the treatment solution applied (sample calculation on p. 10). The solution concentration needed to provide 1 lb a.i./A was 125.5 mg a.i./L for all species.

The following environmental conditions were reported in Table 2, p. 18: the mean relative humidity was 63% (range: 60-75%), the mean temperature was 25°C (range: 22-28°C), the mean light intensity was 12000 lux (range: 9800-15000), and the mean carbon dioxide was 420 ppm (range: 400-460 ppm).

This study was conducted in accordance with USEPA Good Laboratory Practice Standards and includes a Quality Assurance statement.

**15. REFERENCES:** None cited

**APPENDIX I. OUTPUT FROM REVIEWER'S STATISTICAL VERIFICATION:****Cabbage**

cabbage length

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**ANOVA TABLE**

SOURCE	DF	SS	MS	F
Between	3	0.251	0.084	0.683
Within (Error)	6	0.738	0.123	
Total	9	0.989		

Critical F value = 4.76 (0.05,3,6)

Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ : All groups equal

cabbage length

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**BONFERRONI T-TEST - TABLE 1 OF 2**  $H_0$ : Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	GRPS 1&2 POOLED	4.375	4.375		
2	0.000095	4.000	4.000	1.235	
3	0.00019	4.050	4.050	1.070	
4	0.00038	4.250	4.250	0.412	

Bonferroni T table value = 2.75 (1 Tailed Value,  $P=0.05$ ,  $df=6,3$ )

cabbage length

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**BONFERRONI T-TEST - TABLE 2 OF 2**  $H_0$ : Control < Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of DIFFERENCE CONTROL FROM CONTROL
1	GRPS 1&2 POOLED	4		
2	0.000095	2	0.835	19.1
3	0.00019	2	0.835	19.1
4	0.00038	2	0.835	19.1

cabbage length

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WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	ORIGINAL N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	GRPS 1&2 POOLED	4	4.375	4.375	4.375
2	0.000095	2	4.000	4.000	4.100
3	0.00019	2	4.050	4.050	4.100
4	0.00038	2	4.250	4.250	4.100

cabbage length

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WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. MEAN	SIG WILLIAMS	TABLE P=.05	DEGREES OF WILLIAMS	FREEDOM
GRPS 1&2 POOLED	4.375					
0.000095	4.100	0.906	1.94	k= 1, v= 6		
0.00019	4.100	0.906	2.06	k= 2, v= 6		
0.00038	4.100	0.906	2.10	k= 3, v= 6		

s = 0.351

Note: df used for table values are approximate when v &gt; 20.

cabbage weight

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ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	72.426	24.142	15.098
Within (Error)	6	9.592	1.599	
Total	9	82.018		

Critical F value = 4.76 (0.05,3,6)

Since F &gt; Critical F REJECT Ho: All groups equal

cabbage weight

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**BONFERRONI T-TEST - TABLE 1 OF 2** Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN		MEAN CALCULATED IN ORIGINAL UNITS		T STAT	SIG
1	GRPS 1&2 POOLED	14.805		14.805			
2	0.000095	12.140		12.140	2.434		
3	0.00019	10.065		10.065	4.328 *		
4	0.00038	7.910		7.910	6.296 *		

Bonferroni T table value = 2.75 (1 Tailed Value, P=0.05, df=6,3)

cabbage weight

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**BONFERRONI T-TEST - TABLE 2 OF 2** Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)		% of DIFFERENCE CONTROL FROM CONTROL
1	GRPS 1&2 POOLED	4			
2	0.000095	2	3.012	20.3	2.665
3	0.00019	2	3.012	20.3	4.740
4	0.00038	2	3.012	20.3	6.895

cabbage weight

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**WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2**

GROUP	IDENTIFICATION	ORIGINAL N	ORIGINAL MEAN		TRANSFORMED MEAN		ISOTONIZED MEAN
1	GRPS 1&2 POOLED	4	14.805		14.805		14.805
2	0.000095	2	12.140		12.140		12.140
3	0.00019	2	10.065		10.065		10.065
4	0.00038	2	7.910		7.910		7.910

cabbage weight

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**WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2**

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ISOTONIZED CALC.	SIG	TABLE	DEGREES OF
IDENTIFICATION	MEAN	WILLIAMS	P=.05 WILLIAMS
			FREEDOM

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GRPS 1&2 POOLED	14.805		
0.000095	12.140	2.434	* 1.94 k= 1, v= 6
0.00019	10.065	4.329	* 2.06 k= 2, v= 6
0.00038	7.910	6.297	* 2.10 k= 3, v= 6

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s = 1.264

Note: df used for table values are approximate when v &gt; 20.

**Lettuce**

lettuce length

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## ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	0.706	0.235	6.184
Within (Error)	6	0.230	0.038	
Total	9	0.936		

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Critical F value = 4.76 (0.05,3,6)

Since F &gt; Critical F REJECT Ho:All groups equal

lettuce length

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## BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control&lt;Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	pooled control	2.700	2.700		
2	0.00012	2.750	2.750	-0.296	
3	0.00023	2.700	2.700	0.000	
4	0.00046	2.050	2.050	3.850 *	

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Bonferroni T table value = 2.75 (1 Tailed Value, P=0.05, df=6,3)

lettuce length

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**BONFERRONI T-TEST - TABLE 2 OF 2** **Ho:Control<Treatment**

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of DIFFERENCE CONTROL FROM CONTROL
1	pooled control	4		
2	0.00012	2	0.464	17.2 -0.050
3	0.00023	2	0.464	17.2 0.000
4	0.00046	2	0.464	17.2 0.650

lettuce length

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**WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2**

GROUP	IDENTIFICATION	ORIGINAL N	MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	pooled control	4	2.700	2.700	2.717
2	0.00012	2	2.750	2.750	2.717
3	0.00023	2	2.700	2.700	2.700
4	0.00046	2	2.050	2.050	2.050

lettuce length

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**WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2**

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE P=	DEGREES OF FREEDOM
pooled control	2.717				
0.00012	2.717	0.098	1.94	k= 1, v= 6	
<b>0.00023</b>	<b>2.700</b>	<b>0.000</b>	<b>2.06</b>	<b>k= 2, v= 6</b>	
0.00046	2.050	3.834 *	2.10	k= 3, v= 6	

s = 0.196

Note: df used for table values are approximate when v &gt; 20.

lettuce weight

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**ANOVA TABLE**

SOURCE	DF	SS	MS	F
Between	3	0.894	0.298	1.753
Within (Error)	6	1.018	0.170	
Total	9	1.912		

Critical F value = 4.76 (0.05,3,6)

Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ : All groups equal

lettuce weight

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BONFERRONI T-TEST - TABLE 1 OF 2  $H_0$ : Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	pooled control	2.160	2.160		
2	0.00012	1.785	1.785	1.050	
3	0.00023	1.635	1.635	1.470	
4	0.00046	1.395	1.395	2.142	

Bonferroni T table value = 2.75 (1 Tailed Value,  $P=0.05$ ,  $df=6,3$ )

lettuce weight

File: 5404lw Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 2 OF 2  $H_0$ : Control < Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of DIFFERENCE CONTROL FROM CONTROL
1	pooled control	4		
2	0.00012	2	0.982	45.5
3	0.00023	2	0.982	45.5
4	0.00046	2	0.982	45.5

lettuce weight

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WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	ORIGINAL N	MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
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1	pooled control	4	2.160	2.160	2.160
2	0.00012	2	1.785	1.785	1.785
3	0.00023	2	1.635	1.635	1.635
4	0.00046	2	1.395	1.395	1.395

lettuce weight

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## WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. MEAN	SIG WILLIAMS	TABLE P=.05	DEGREES OF WILLIAMS FREEDOM
pooled control	2.160				
0.00012	1.785	1.051	1.94	k= 1, v= 6	
<b>0.00023</b>	<b>1.635</b>	<b>1.472</b>	<b>2.06</b>	<b>k= 2, v= 6</b>	
0.00046	1.395	2.144	*	2.10	k= 3, v= 6

s = 0.412

Note: df used for table values are approximate when v &gt; 20.

## Turnip

turnip weight

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## ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	3	112.906	37.635	13.735
Within (Error)	6	16.442	2.740	
Total	9	129.348		

Critical F value = 4.76 (0.05,3,6)

Since F &gt; Critical F REJECT Ho:All groups equal

turnip weight

File: 5404tw Transform: NO TRANSFORMATION

## BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control&lt;Treatment

TRANSFORMED MEAN CALCULATED IN

DP Barcode: D282361

MRID No.: 45535404

GROUP	IDENTIFICATION	MEAN	ORIGINAL UNITS	T STAT	SIG
1	GRPS 1&2 POOLED	20.000	20.000		
2	0.000075	16.905	16.905	2.159	
3	0.00015	14.205	14.205	4.042	*

4            0.0003    11.350            11.350            6.034 \*

Bonferroni T table value = 2.75 (1 Tailed Value, P=0.05, df=6,3)

turnip weight

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BONFERRONI T-TEST - TABLE 2 OF 2      Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of DIFFERENCE CONTROL FROM CONTROL
1	GRPS 1&2 POOLED	4		
2	0.000075	2	3.942	19.7
3	0.00015	2	3.942	19.7
4	0.0003	2	3.942	19.7

turnip weight

File: 5404tw      Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	ORIGINAL N	MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	GRPS 1&2 POOLED	4	20.000	20.000	20.000
2	0.000075	2	16.905	16.905	16.905
3	0.00015	2	14.205	14.205	14.205
4	0.0003	2	11.350	11.350	11.350

turnip weight

File: 5404tw      Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

ISOTONIZED CALC. SIG TABLE DEGREES OF  
IDENTIFICATION MEAN WILLIAMS P=.05 WILLIAMS FREEDOM

GRPS 1&2 POOLED	20.000			
0.000075	16.905	2.159	*	1.94 k= 1, v= 6
0.00015	14.205	4.042	*	2.06 k= 2, v= 6
0.0003	11.350	6.034	*	2.10 k= 3, v= 6

s = 1.655

Note: df used for table values are approximate when v > 20.